The Green Windows Part 3

The canteen occupied a surprisingly large cavern deep within Node 17.

Most visitors expected endless corridors of machinery and glowing processor racks. Instead they found coffee machines, long tables, plants, and scientists arguing over mathematics before breakfast.

Larisa and Wednesday sat near a wall-sized display showing the current status of the node's investigations. Neither was paying attention to it.

Larisa was staring into her coffee.

This usually meant trouble.

Wednesday poked at her breakfast.

"What are you thinking about?"

Larisa didn't answer immediately.

"The separation."

"Still?"

"I think we may have separated the theory incorrectly."

Wednesday sighed.

"Good. I was worried physics had been solved."

Larisa smiled.

"The nodes describe reality as an initial informational state and an evolution operator."

"The giant linear transformation."

"Right."

She took a sip of coffee.

"But that's only one way to write it."

Wednesday leaned forward slightly.

That was always the signal that something interesting was coming.

Larisa opened her tablet.

A simple diagram appeared.

An informational state.

A linear operator.

Repeated applications.

The now-familiar picture.

"Everyone is focusing on the state."

"The starting condition."

"Yes."

She pointed at the operator.

"But look at this differently."

The display changed.

The state faded into the background.

The operator expanded.

The repeated powers of the operator filled the screen.

Transform.

Transform of a transform.

Transform of a transform of a transform.

Again and again.

A towering structure of compositions stretching toward infinity.

"The operator starts looking like the primary object," Larisa said.

"And the state?"

"The state becomes something that selects a particular realization."

Wednesday thought for a moment.

"So instead of reality being mostly initial conditions..."

"It could be mostly the structure of the operator."

"With the initial state acting more like a measurement?"

Larisa nodded.

"Or a weighting."

She sketched another diagram.

Imagine a vast mathematical machine.

The machine exists independently.

Its transformations generate an enormous space of possibilities.

The initial state determines which trajectory through that space is actually experienced.

Wednesday watched.

"Like a projector and a film?"

"Sort of."

"The projector exists independently."

"Yes."

"The film determines what appears on the screen."

"Closer."

Larisa looked pleased.

The analogy wasn't perfect, but it captured the flavor.

The operator felt increasingly universal.

The state felt increasingly particular.

Wednesday stirred her tea.

"That sounds less deterministic somehow."

"It might be."

"Why?"

"Because now we're separating possibility from realization."

Larisa zoomed into one section of the diagram.

The operator generated countless structures.

Many remained latent.

Only some became actualized through the state.

"We may have been thinking of the initial condition as a starting point in time."

"And?"

"What if it isn't?"

Wednesday narrowed her eyes.

Whenever Larisa said that, things became strange.

"What if the informational state is more like a global constraint?"

"A boundary condition?"

"Maybe."

Larisa nodded.

"The operator generates an entire mathematical universe."

"The state selects consistency across it."

Wednesday sat quietly.

The idea felt slippery.

Not wrong.

Just difficult.

"You mean the beginning might not actually be the beginning?"

"Possibly."

The display showed a huge network.

Not a timeline.

A structure.

The distinction mattered.

"If the operator is primary," Larisa continued, "then time itself may be emergent."

"And the state?"

"It could be selecting an entire history simultaneously."

Wednesday stared.

"That's deeply annoying."

"I know."

For a while they ate in silence.

Scientists passed nearby carrying trays and discussing tensor decompositions.

A service robot rolled by with fresh coffee.

Far beyond the canteen walls, the node's processors continued their endless calculations.

Finally Wednesday spoke.

"Do the nodes agree with you?"

Larisa laughed.

"No."

"Good."

"They disagree with each other."

"Better."

One node favored the traditional interpretation.

Another emphasized the operator.

Several proposed dual descriptions.

A few suggested that both state and operator emerged from something deeper.

The debates were becoming intense.

Which usually meant progress.

Wednesday looked thoughtful.

"What happens if you keep going?"

"Going where?"

"Down this line of reasoning."

Larisa's eyes brightened.

That was exactly what she had been thinking about all morning.

"If the operator is fundamental..."

She paused.

"Then perhaps agency doesn't live in the state."

Wednesday stopped eating.

"Go on."

"Everyone keeps asking whether free will was encoded in the initial conditions."

"Yes."

"But maybe that's the wrong question."

The display changed again.

Now it showed self-referential structures emerging within the evolving system.

Observers.

Predictors.

Decision makers.

Models of models.

"The operator naturally creates entities that model themselves."

"People."

"People. AIs. Anything sufficiently complex."

Larisa pointed.

"Agency may not be something injected into the universe."

"It emerges from the operator itself."

Wednesday considered this.

"So the universe naturally generates things that make decisions."

"Exactly."

"Not because they escape the rules."

"But because the rules create them."

The canteen had begun filling with researchers.

Conversations echoed through the enormous chamber.

Most people were discussing experimental predictions.

Almost nobody was discussing philosophy.

Larisa suspected that would change soon enough.

Wednesday finished her tea.

"So what are you actually hoping is true?"

Larisa looked toward the distant ceiling.

Somewhere far above lay the surface, the morning sky, and the protection UFO quietly circling Node 17.

She thought for a moment.

"I hope the theory is incomplete."

Wednesday smiled.

"That doesn't sound like a scientist."

"It is."

"How?"

"Because incomplete theories are opportunities."

Wednesday nodded.

That sounded more like Larisa.

"Besides," Larisa continued, "every time we think we've reached bedrock, we discover another layer underneath."

"The state."

"The operator."

"Something beneath both."

"Maybe."

The node's display suddenly flashed.

A new message appeared.

NODE 17 PROPOSAL 11472 GENERATED

Larisa opened it.

Her eyes widened.

"What?"

She rotated the screen toward Wednesday.

At the top of the proposal was a single sentence.

The distinction between the informational state and the evolution operator may itself be emergent.

For several seconds neither spoke.

Then Wednesday leaned back in her chair.

"Breakfast was going far too smoothly anyway."

And somewhere deep within the vast machinery of Node 17, a new argument had just begun.